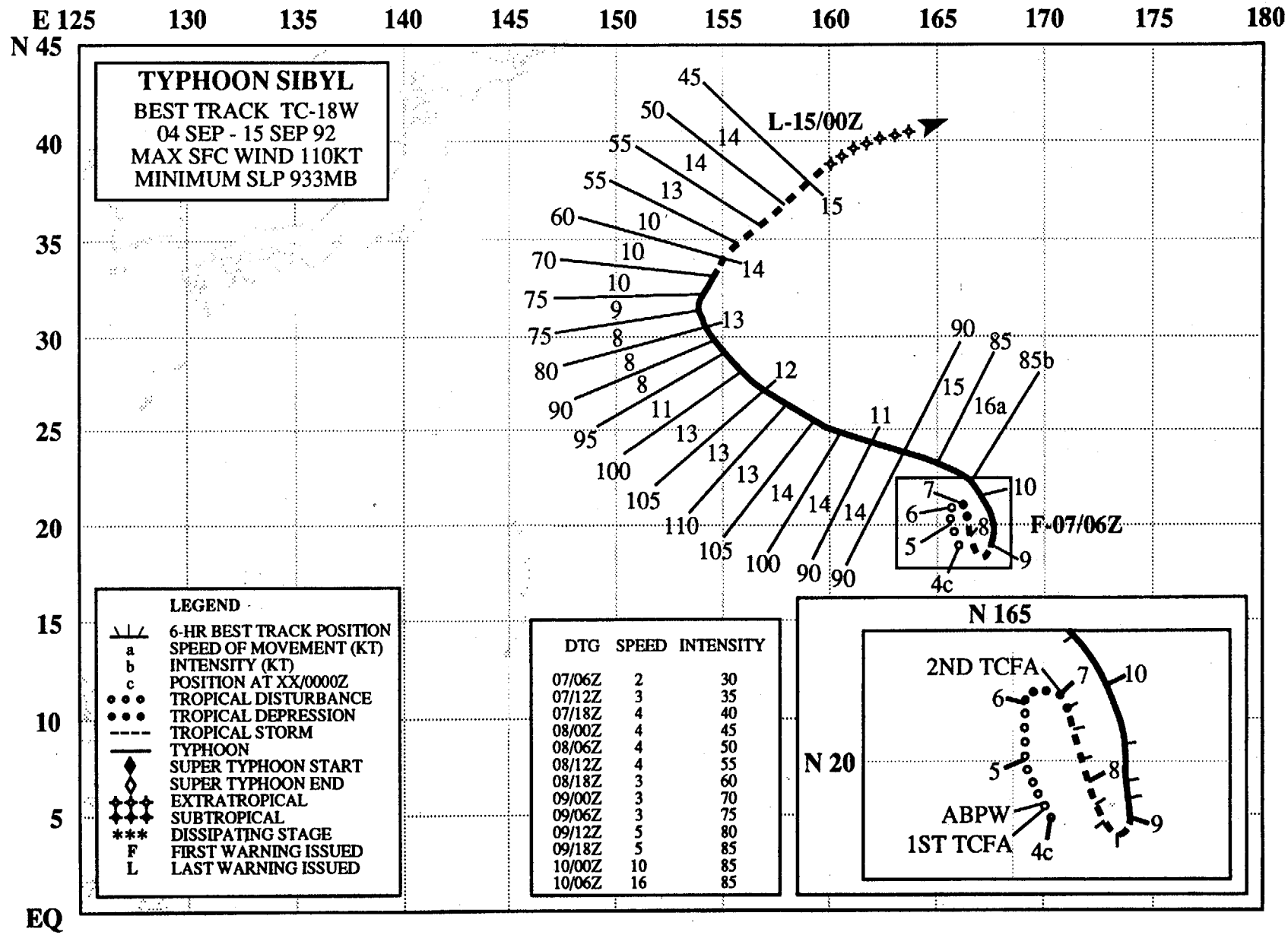
E 125
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5
EQ
TYPHOON SIBYL
BEST TRACK TC-18W
04 SEP - 15 SEP 92
MAX SFC WIND 110KT
MINIMUM SLP 933MB
L-15/00Z
F-07/06Z
LEGEND
6-HR BEST TRACK POSITION
a SPEED OF MOVEMENT (KT)
b INTENSITY (KT)
c POSITION AT XX/0000Z
TROPICAL DISTURBANCE
TROPICAL DEPRESSION
TROPICAL STORM
TYPHOON
SUPER TYPHOON START
SUPER TYPHOON END
EXTRATROPICAL
SUBTROPICAL
*** DISSIPATING STAGE
F FIRST WARNING ISSUED
L LAST WARNING ISSUED
DTG SPEED INTENSITY
07/06Z 2 30
07/12Z 3 35
07/18Z 4 40
08/00Z 4 45
08/06Z 4 50
08/12Z 4 55
08/18Z 3 60
09/00Z 3 70
09/06Z 3 75
09/12Z 5 80
09/18Z 5 85
10/00Z 10 85
10/06Z 16 85
N 165
N 20
2ND TCFA
ABPW
1ST TCFA

96

TYPHOON SIBYL (18W)

I. HIGHLIGHTS

The second of five significant tropical cyclones to form in September, Sibyl, like Ryan (17W), formed at the extreme eastern end of the monsoon trough. But unlike Ryan, Sibyl underwent a complex interaction with a cyclonic cell in the Tropical Upper-Tropospheric Trough (TUTT), and later recurved. For five days Sibyl exhibited erratic motion and slowly intensified near Wake Island, before moving to the northwest and recurving.

II. TRACK AND INTENSITY

The tropical disturbance that became Sibyl formed at the eastern end of the monsoon trough that included both Typhoon Omar (15W) and Typhoon Ryan (17W). As Ryan (17W) intensified, the falling surface pressures along the monsoon trough extended eastward into the Wake Island area. In response, the surface pressure at Wake Island (WMO 91245) had been slowly, but steadily falling since 1 September (Figure 3-18-1). The combination of the falling surface pressures, soundings from Wake Island (WMO 91245) showing strengthening southwesterlies, and the appearance of an exposed low-level circulation center on the satellite imagery, prompted the Alternate JTWC (AJTWC) to issue a Tropical Cyclone Formation Alert (TCFA) at 040400Z.

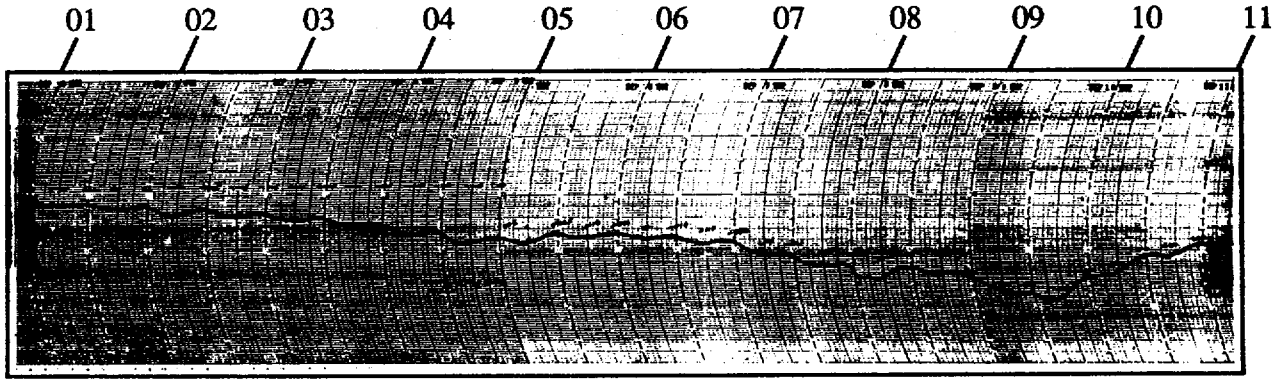

Figure 3-18-1. Barograph trace for the period 01-11 September for Wake Island (WMO 91245) showing the steadily falling pressures from 010000Z to 091445Z associated with the extension of the monsoon trough into the area, and the formation and intensification of Sibyl near the island. (Microbarograph trace courtesy of the National Weather Service Office, Wake Island).

In the TUTT over the alert area, in conjunction with the increasing outflow from Ryan (15W), a cyclonic cell developed. As the complex interaction between the tropical disturbance and the TUTT-cell progressed, the deep convection was sheared from the low-level circulation center by strong 35- to 45-kt (18- to 23-m/sec) winds around the TUTT-cell at 200 mb. As a result, the TCFA was canceled at 050400Z. Though the strong vertical wind shear remained over the area, the stronger than normal low-level winds remained. The ambient surface pressure near Wake Island continued to fall, and the tropical disturbance persisted in the form of a monsoon depression. A second TCFA, issued at 070000Z, discussed the gales, and the presence of a low-level circulation center evident in the synoptic and satellite data. The reappearance of central convection resulted in AJTWC issuing the first warning at 070600Z. Subsequently, Sibyl was upgraded to tropical storm intensity at 071800Z as the central convection expanded displacing the TUTT-cell aloft farther to the north. The tropical storm continued to intensify,

and a visible eye developed in the central dense overcast. The resulting satellite intensity estimate of 65 kt (33 m/sec) was the basis for Sibyl's upgrade to typhoon on the 090000Z warning issued by JTWC. At 091445Z, Wake Island recorded its lowest pressure, 984.5 mb, and northwest winds of 35 gusting to 48 kt (18 G 25 m/sec) at 091500Z, as Typhoon Sibyl finally began moving away.

Until 9 September, Sibyl's erratic track appeared to be the consequence the southwest flow associated with the interaction of the monsoon flow and with the easterlies of the subtropical ridge to the north and east of Wake Island. The TUTT may have played a role in the erratic movement as well. This complex synoptic pattern changed on 9 September, and Sibyl made an abrupt track change to the north. By 10 September the typhoon had accelerated and had settled into a more normal northwestward course under the influence of the subtropical ridge (Figure 3-18-2). Sibyl continued tracking toward the northwest until 13 September, when it passed through a break in the mid-tropospheric subtropical ridge and recurved. The final warning was issued by JTWC at 150000Z as Sibyl became extratropical and accelerated to the northeast.

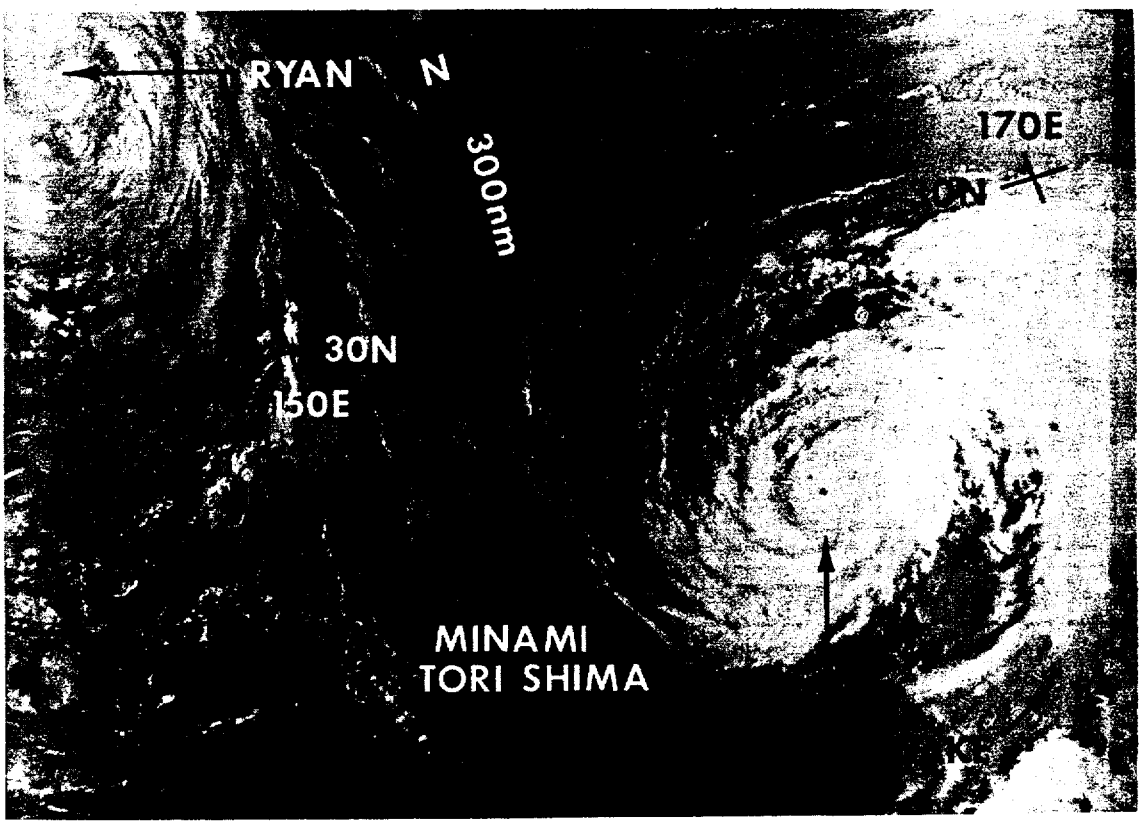

Figure 3-18-2. Typhoon Sibyl finally moves away from Wake Island. Typhoon Ryan (17W) is visible at the top left of the picture (102133Z September NOAA visual imagery).

III. FORECAST PERFORMANCE

Sibyl proved to a difficult system for AJTWC/JTWC to forecast. The overall mean track errors were 100, 194 and 305 nm (185, 360 and 565 km) for the 24-, 48 and 72-hour forecasts, respectively. While these are below average, they would have been much larger had Sibyl not moved so slowly. Although AJTWC/JTWC showed skill overall on the 24-hour forecasts, CLIPER, which provides the performance baseline, was superior at the 48- and 72-hour points with 10% and 30% better performance, respectively.

With regard to intensity, the short term forecasts were good, however, the extended outlooks for 72-hours were low by 20 to 45 kt (10 to 23 m/sec) for the first day and a half, and high by 40 to 55 kt (21 to 28 m/sec) for a day after 110600Z.

IV. IMPACT

Although Wake Island was buffeted by gales for days, no major damage or injuries were reported. Some minor water damage occurred, and Wake Island was in Condition of Readiness 1 for a day.

As with Typhoon Ryan (17W), AJTWC warned on Sibyl while JTWC was incapacitated. However, many of the direct telephone discussions with customers in Micronesia, including Wake Island, were handled by the JTWC, Guam forecasters. JTWC was able to resume its full service on 8 September.